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TO: State Board of Education

FROM: Mike Flanagan, Chairman

SUBJECT: Discussion of Michigan Educational Technology Standards and Expectations (METS) for Grades 9-12

It is a goal of Congress, as stated in Title II, Part D (Enhancing Education Through Technology) of the No Child Left Behind Act (NCLB) of 2001 that a school will: Assist every student in crossing the digital divide by ensuring that every student is technologically literate by the time the student finishes the eighth grade, regardless of the student's race, ethnicity, gender, family income, geographic location, or disability.

As the starting point for providing detailed guidance for districts to meet the NCLB goal, the State of Michigan began with the International Society for Technology in Education (ISTE) technology standards for students. These standards are called the NETS-S, the National Education Technology Standards for Students. To create the 9-12 METS, we followed the same process used to develop the previously approved METS for K-8. Starting with the NETS-S for grades 9-12, we incorporated recommendations from the State Board of Education Embracing the Information Age Task Force, the high school redesign task force, the work groups for the new state educational technology plan, and the comments from the Board's May 2005 review of the K-8 METS. After the initial development, the 9-12 METS were reviewed by experts and relevant groups from across the state. These groups included the Michigan Association of Intermediate School Administrators (MAISA) Technology Committee; the Regional Educational Media Center (REMC) directors; professional education organizations; and ISD/LEA curriculum and technology directors. All input was carefully considered in the development of the standards.

At this time the Michigan Educational Technology Standards and Expectations for Grades 9-12 are presented to the State Board of Education for discussion.

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MICHIGAN EDUCATIONAL TECHNOLOGY STANDARDS AND EXPECTATIONS
GRADES 9 – 12

1) Basic Operations and Concepts – By the end of Grade 12 each student will:

1) discuss emerging technology resources (e.g., podcasting, webcasting, compressed video delivery, online file sharing, graphing calculators, global positioning software)
2) identify the capabilities and limitations of emerging communication resources
3) understand the importance of both the predictable and unpredictable impacts of technology
4) identify changes in hardware and software systems over time and discuss how these changes might affect them personally in their role of a lifelong learner
5) understand that access to online learning increases educational opportunities
6) be provided with the opportunity to learn in a virtual environment as a strategy to build 21st Century learning skills
7) understand the relationship between electronic resources, infrastructure, and connectivity
8) routinely apply touch-typing techniques with advanced accuracy, speed, and efficiency
9) assess and solve hardware and software problems by using online help or other user documentation and support
10) identify common graphic, audio, and video file formats (e.g., jpeg, gif, bmp, mpeg, wav)
11) demonstrate how to import/export text, graphics, or audio files
12) proofread and edit a document using an application's spelling and grammar checking functions

2) Social, ethical, and human issues – By the end of Grade 12 each student will:

1) identify legal and ethical issues related to use of information and communication technology
2) analyze current trends in information and communication technology and assess the potential of emerging technologies for ethical and unethical uses
3) discuss possible long-range effects of unethical uses of technology (e.g., virus spreading, file pirating, hacking) on cultures and society
4) discuss the possible consequences and costs of unethical uses of information and computer technology
5) identify ways that individuals can protect their technology systems from unethical or unscrupulous users
6) demonstrate the ethical use of technology as a digital citizen and lifelong learner
7) participate in online communities and online learning opportunities
8) explain the differences between freeware, shareware, and commercial software
9) adhere to fair use and copyright guidelines
10) create appropriate citations for resources when presenting research findings
11) adhere to the district acceptable use policy as well as state or federal laws
12) explore career opportunities and identify their related technology skill requirements
13) design and implement a personal learning plan that includes technology to support his/her lifelong learning goals

3) Technology productivity tools – By the end of Grade 12 each student will:

1) use technology tools for managing and communicating personal information (e.g., finances, contact information, schedules, purchases, correspondence)
2) apply advanced software features such as an application's built-in thesaurus, templates and styles to improve the appearance of word processing documents, spreadsheets, and presentations
3) identify technology tools (e.g., authoring tools or other hardware and software resources) that could be used to create a group project
4) use an online tutorial and discuss the benefits and disadvantages of this method of learning
5) develop a document or file for inclusion into a web site or web page
6) use a variety of applications to plan, create, and edit a multimedia product (e.g., model, webcast, presentation, publication, or other creative work)
7) have the opportunity to participate in real-life experiences associated with technology-related careers

4) Technology communications tools – By the end of Grade 12 each student will:

1) identify and describe various telecommunications or online technologies (e.g., desktop conferencing, list servs, blogs, virtual reality)
2) use available technologies (e.g., desktop conferencing, e-mail, groupware, instant-messaging) to communicate with others on a class assignment or project
3) use a variety of media and formats to design, develop, publish, and present products (e.g., presentations, newsletters, web sites) to communicate original ideas to multiple audiences
4) collaborate in content-related projects that integrate a variety of media (e.g., print, audio, video, graphic, simulations, and models) with presentation, word processing, publishing, database, graphics design, or spreadsheet applications
5) plan and implement a collaborative project using telecommunications tools (e.g., groupware, interactive web sites, videoconferencing)

5) Technology research tools – By the end of Grade 12 each student will:

1) compare, evaluate, and select appropriate internet search engines to locate information
2) formulate and use evaluation criteria (authority, accuracy, relevancy, timeliness) for information located on the internet to present research findings
3) determine if online sources are authoritative, valid, reliable, relevant, and comprehensive
4) distinguish between, fact, opinion, point of view, and inference
5) evaluate resources for stereotyping, prejudice, and misrepresentation
6) develop a plan to gather information using various research strategies (e.g., interviews, questionnaires, experiments, online surveys)

6) Technology problem-solving and decision-making tools – By the end of Grade 12 each student will:

1) use a variety of technology resources (e.g., educational software, simulations, models) for problem solving and independent learning
2) describe the possible integration of two or more information and communication technology tools or resources to collaborate with peers, community members, and field experts
3) formulate a research question or hypothesis, then use appropriate information and communication technology resources to collect relevant information, analyze the findings, and report the results to multiple audiences